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**A Conditional Indirect Effect of Language Brokering on Adjustment  
among Chinese and Korean American Adolescents: The Roles of  
Perceived Maternal Sacrifice, Respect for the Mother, and Mother-  
Child Open Communication**

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Child Open Communication**

**by**

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## **Abstract**

### **A Conditional Indirect Effect of Language Brokering on Adjustment among Chinese and Korean American Adolescents: The Roles of Perceived Maternal Sacrifice, Respect for the Mother, and Mother- Child Open Communication**

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Asian American adolescents, such as Chinese and Korean American adolescents, often language broker for their immigrant parents. This study examines how language brokering influences parent-child relationships and adolescents' psychological adjustment in Asian-American families. Using a two-wave sample of Chinese ( $n = 237$ ; average age = 14.65,  $SD = .68$ ) and Korean ( $n = 262$ ; average age = 14.72,  $SD = .69$ ) American adolescents, this study examined a culturally relevant conditional mechanism through which language brokering may contribute to lower levels of internalizing/externalizing problems. Results suggested that language brokering for the mother was associated with perceived maternal sacrifice, which was in turn associated with respect for the mother, which was eventually associated with lower levels of externalizing problems (but not internalizing problems) in the adolescents. Moreover, the indirect effect was conditional on the level of mother-child open communication. With a

lower level of open communication, the indirect effect of language brokering on externalizing problems became stronger. Results indicate that interventions designed to reduce Asian American adolescent language brokers' externalizing problems can target their perception of parental sacrifice and their respect for parents, and that this approach may be especially effective for adolescents experiencing a low level of parent-child open communication. At the same time, for these families with low levels of parent-child open communication, encouraging more open communication may be an additional way to intervene.

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## **Chapter 1: Introduction**

Asian American adolescents often provide translation and interpretation for their parents who have limited English skills, which is known as language brokering (McQuillan & Tse, 1995). About 70-80% of Asian American adolescents, including Chinese and Korean American adolescents, language broker for their parents (Chao, 2006; Tse, 1996). Language brokering, which requires complex and challenging duties, has been found to be a risk factor for adolescents' internalizing and externalizing problems (Chao, 2006). However, language brokering is not invariably harmful to adolescents' psychological adjustment, as the association is contingent on parent-child relationships within the family (Hua & Costigan, 2011; Oznobishin & Kurman, 2009). Moreover, there is evidence suggesting that more instances of language brokering are associated with adolescents' increased understanding and respect for parents (Chao, 2006; DeMent, Buriel, & Villanueva, 2005; Orellana, Dorner, & Pulido, 2003), through which language brokering may even indirectly lead to positive psychosocial outcomes, indicated by lower levels of internalizing/externalizing problems. Building on these previous findings, the current study proposes a conditional indirect effect of language brokering on adolescents' internalizing/externalizing problems, which, if verified, may afford a valuable target for prevention and intervention programming among Asian American adolescent language brokers.

### **LANGUAGE BROKERING AMONG CHINESE AND KOREAN AMERICAN ADOLESCENTS**

The majority of the literature on language brokering has focused on Mexican-

American adolescents, and only several studies have investigated language brokering among Asian Americans. Thus, few studies have thoroughly investigated language brokering within the context of Asian immigrant culture (Hua & Costigan, 2011), in terms of what parent-child relationship factors may mediate and moderate the relation between language brokering and adolescent adjustment. Traditional East Asian cultures not only value parental support and sacrifice for the children, but also emphasize the importance of appreciation and respect for parental sacrifice from the children. However, no study has so far tested whether Asian American adolescents' language brokering may have a beneficial indirect effect on their adjustment through such culture-specific parent-child relationship variables. Thus, this study first examines the perceived maternal sacrifice and respect for the mother as sequential mediators in the indirect relation between language brokering for the mother and adolescents' internalizing/externalizing problems. At the same time, influenced by the mainstream American culture, the adoption of Western familial values such as parent-child open communication may influence the magnitude of the potential indirect effect. As such, mother-child open communication is examined as a potential moderator of the hypothesized indirect effect.

Due to children's increased literacy and cognitive complexity, adolescence seems to be the most critical period for language brokering (Buriel, Love, & Villanueva, 2011). Moreover, greater vulnerability to problems involving emotional and behavioral dysregulation also makes adolescence a particularly critical period for children (Yap, Allen, & Sheeber, 2007). However, few studies have focused on the longitudinal effect of

language brokering during adolescence. Hence, this study uses longitudinal data to examine the impact of language brokering on adolescents' internalizing/externalizing problems, when they were in ninth grade and tenth grade.

Due to limited number of studies on Asian American adolescents as a whole, little is known about the inter-group differences among Asian American ethnic groups. Despite the overall similarities between Chinese and Korean cultures, there is still some evidence suggesting that Chinese and Korean American adolescents may have adapted differently to life in the U.S. For example, Korean adult immigrants were found to have a higher rate of self-employment than any other Asian immigrant groups (Kim, 1998), which may potentially indicate a higher need of parents for children's language brokering, compared to Chinese immigrant families. An empirical study has also found a higher rate of language brokering of Korean American adolescents than Chinese American adolescents (Chao, 2006). In addition, Chinese and Korean American youth may be different in their vulnerability to psychological and behavioral maladjustment. For example, Korean American youth were found more likely to engage in risky behaviors such as smoking than Chinese American youth (Chen et al., 1999). Yet, different levels of risk do not necessarily suggest different association patterns among language brokering, parent-child relationships, and adjustment. As such, although the current study makes a comparison between models for Chinese and Korean American adolescents, no a priori hypotheses are made regarding the potential differences.

## **THE MEDIATING ROLES OF PERCEIVED PARENTAL SACRIFICE AND RESPECT FOR PARENTS**

Chao (2006) has speculated that the mechanism behind the association between language brokering and respect for parents may be that, through language brokering, adolescents may gain a deeper understanding of the sacrifices their parents made in the process of immigration and acculturation, which elicits more respect for parents. Indeed, there is some initial, qualitative evidence suggesting that language brokering helps adolescents better understand their parents' struggles and sacrifices, which results in feelings of compassion and respect (DeMent, et al., 2005). However, no study seems to have directly tested the relations among language brokering, perceived parental sacrifices and respect for parents together in one theoretical model using longitudinal data. Asian immigrant parents tend to express their love by providing instrumental support and ensuring that the children's daily needs are met (Chao & Tseng, 2002; Pyke, 2000). Therefore, as adolescents become more directly involved in their parents' lives through translating for them, from school materials, to household bills, and to parents' work information, they are more likely to realize how much their parents sacrifice for them on a daily basis, and to feel greater respect for them as a result.

Both perceived parental sacrifice and respect for parents may be protective factors against adolescent internalizing/externalizing problems. Unlike Western cultures, in which guilt is assumed to have negative impact on children's development, Asian cultures generally hold that it is appropriate for children to feel guilty about their parents'

devotion and sacrifice (Kim & Park, 2006). Indeed, appreciation of parental devotion and sacrifice has been found to have a protective function in adolescents' psychological adjustment, as it reduces the negative impact of parent-child cultural dissonance on adolescents' internalizing problems (C. Wu & Chao, 2011). Similarly, respect for parents may also serve as a factor that protects against adolescent problems. It is plausible to expect Chinese and Korean adolescents who have more respect for their parents to behave in ways they believe will bring honor to their parents. In fact, ethnic minority girls' respect for maternal authority has been found to be a predictor of less parent-child conflict (Dixon, Graber, & Brooks-Gunn, 2008), a significant risk factor for both externalizing and internalizing problems (e.g., Choi, et al., 2008; Formoso, Gonzales, & Aiken, 2000).

Taken together, perceived parental sacrifice and respect for parents may be sequential mediators through which Asian American adolescents' language brokering for parents may influence their internalizing/externalizing problems. That is, more language brokering experiences may lead adolescent brokers to perceive more parental sacrifice, which may in turn elicit more respect for that parent, which may eventually result in lower levels of internalizing/externalizing problems in the adolescent. This study adds to the literature by using longitudinal data to test the indirect relationship between Asian American adolescents' language brokering and their internalizing/externalizing problems. This study also contributes to the literature by testing these relationships across Chinese and Korean American adolescents.

## **THE MODERATING ROLE OF PARENT-CHILD OPEN COMMUNICATION**

As scholars have noted, when investigating the relation between language brokering and adolescents' psychological adjustment, it is important to understand the moderating role of the cultural-familial context (Hua & Costigan, 2011; Oznobishin & Kurman, 2009). However, these studies have not explicitly tested moderation within a mediation model of language brokering. The current study extends the literature by examining the impact of parent-child open communication as a cultural-familial moderator that is hypothesized to interact with language brokering to have an indirect effect on adolescents' internalizing/externalizing problems.

Whereas traditional Asian families tend to withhold free expression of feelings and avoid open communication (Rhee, Chang, & Rhee, 2003; Uba, 1994), some Asian families living in a Western cultural context may adopt the Western value of open communication. Open communication between parents and children has far-reaching benefits for adolescents because it helps establish close relationships within the family (Riesch, Anderson, & Krueger, 2006; Tulloch, Blizzard, & Pinkus, 1997). It is possible that open communication may also have an impact on the relation between language brokering and parent-child relationships such as perceived parental sacrifice and respect for parents, thus indirectly conditioning the association between language brokering and internalizing/externalizing problems. For example, for adolescents who experience more parent-child open communication, language brokering per se may not be related to perceiving parental sacrifice, as these adolescents may be able to understand their

parents' sacrificial love regardless of how often they engage in language brokering, and this increased understanding may lead to greater respect for parents and to lower levels of internalizing/externalizing problems. On the other hand, for adolescents from families with lower levels of open communication, brokering experiences may help create opportunities for them to understand parents' sacrifices, thus providing another route to their achieving greater respect for parents and lower levels of internalizing/externalizing problems.

#### **CURRENT STUDY**

Using a two-wave sample of Chinese and Korean American adolescents, the current study empirically examines a culturally relevant conditional mechanism of the effect of language brokering across both ethnic groups. The hypotheses can be summarized as follows: (1) More language brokering for the mother is indirectly associated with lower levels of internalizing/externalizing problems in the adolescent. Specifically, more language brokering for the mother is associated with more perceived maternal sacrifice; more perceived maternal sacrifice, in turn, is associated with more respect for the mother; more respect for the mother is eventually associated with lower levels of internalizing and externalizing problems in the adolescent. (2) Mother-child open communication further moderates the indirect effect of language brokering for the mother on internalizing/externalizing problems by moderating the relation between language brokering for the mother and perceived maternal sacrifice: the lower the level of mother-child open communication, the stronger the indirect association between language



brokering for the mother and internalizing/externalizing problems via perceived maternal sacrifice and respect for the mother. (3) Because no a priori hypotheses regarding group differences can be made, this study simply tests the null hypotheses, which assume that the relationships will not be significantly different across groups.

To better support the temporal ordering of the constructs in the mediational chain, indirect effects in alternative cross-sectional models will be tested within Wave 1. In addition to the concurrent indirect effects of language brokering on internalizing/externalizing problems in ninth grade, the present study also examines the longitudinal relations among the constructs across Wave 1 and Wave 2. It is predicted that the same pattern of relations will be obtained, but the pattern can either be due to the stability of the constructs from ninth grade to tenth grade or to a change in perceived maternal sacrifice, respect for the mother, and adjustment. To test the extent to which constructs assessed at Wave 1 are related to their immediate outcome variables assessed at Wave 2, controlling for their prior levels, structural equation modeling (SEM) will be used to examine the cross-lagged relations among variables.

## **Chapter 2: Methods**

### **PARTICIPANTS**

The current sample of language brokers comes from a larger longitudinal study of multicultural families and adolescents. In 2003, adolescents in ninth grade were recruited from eight high schools in the Los Angeles area, and a second wave of data was collected in 2004. For the sample for this study, two inclusion criteria were used. First, only those adolescents who reported the primary caretaker to be the mother were included in this study. This was because the questions related to parenting asked the adolescents to think about the person who took care of them most of the time to answer the questions, and 78.8% of the participants reported that this person was the mother while only 8.8% reported the father as the primary care taker, and the remaining participants reported someone other than their parents. Because the sample size of adolescents who reported about their fathers or other people was too small, these participants were excluded from further analyses.  $\chi^2$ -tests and T-tests showed that those who reported the mother as the primary caretaker and those who did not were not significantly different with respect to gender, generational status, age, number of older siblings, or mother's highest level of education.

The second inclusion criterion was that the adolescents had to report having translated, given that the focus of this study is on adolescents' experiences of language brokering.  $\chi^2$ -tests and T-tests revealed significant differences between translators and non-translators. Compared to non-translators, the language brokers were more likely to

be first-generation ( $\chi^2(2) = 15.96, p = .00$ ) and older ( $t(725) = 2.11, p = .04$ ), and their mothers on average received less education ( $t(599) = -2.29, p = .02$ ). However, they did not differ significantly in gender or the number of older siblings.

The final sample consisted of 237 Chinese Americans and 262 Korean Americans at Wave 1, and 180 of the same Chinese Americans and 180 of the same Korean Americans at Wave 2. Of the Chinese adolescents (45.4% male), 40.8% were first generation (foreign-born with foreign born parents) and 59.2% were second generation (U.S.-born with foreign-born parents). Of the Korean adolescents (44.8% male), 31.5% were first generation while 68.5% were second generation. At Wave 1, the Chinese adolescents were between 13 and 18 years of age ( $M = 14.65, SD = .68$ ), and the Korean adolescents were between 14 and 18 years of age ( $M = 14.72, SD = .69$ ). Means and standard deviations of additional youth and family characteristics are presented in Table 1, separately for Chinese and Korean American adolescents. Attrition analyses were conducted to examine whether those who dropped out of the study after Wave 1 were significantly different from those who remained at Wave 2. None of the demographic variables, including adolescent gender, age, generational status, number of older siblings, or mother's education, was significantly related to attrition.

## **PROCEDURE**

Adolescent participation was acquired with passive consent from the parents, who were asked to send back the postage-paid, self-addressed consent form only if they did not wish their child to participate in this study. This procedure was approved by the

Institutional Review Board at the University of California at Riverside. The consent letter was available in English, Chinese and Korean. Adolescents were also provided with an assent statement on the cover page of the survey. Adolescents were given 50 minutes during one of their class periods to complete paper-and-pencil surveys in English. After completion of the surveys, students received snack bars to thank them for their participants.

## **MEASURES**

### **Language Brokering for the Mother**

To test the long-term effect of language brokering, only the data obtained at Wave 1 were used in the current study. The measure for language brokering consisted of nine items about the frequency of translation provided for the adolescent's mother (Chao, 2006), including translating for homework / assignments, materials from school (notices, newsletters, permission slips, progress reports), meetings or conversations between parents and school staff, household bills / financial materials, household matters not related to money (chores, siblings, or relatives), medical or health issues (doctor visits, medication), immigration/naturalization papers, media (TV programs, news, newspapers, etc.), and issues about the parent's work or business. Frequency of translation was rated on a 5-point scale, ranging from 0 (*not at all*), 1 (*a few times a year*), 2 (*a few times a month*), 3 (*a few times a week*), and 4 (*daily*). Scores for language brokering were obtained by averaging the nine items. The internal consistency of the scale was strong, with  $\alpha = .89$  for Chinese Americans and .90 for Korean Americans.

### **Mother-Child Open Communication**

Only the data for Wave 1 parent-child open communication were used in the current study, and all participants in the current sample indicated that their answers to survey questions about their “parent” referred to their mother. The measure for open communication was created for the purpose of this study, based on the Parent Adolescent Communication Scale (PACS) (Barnes & Olson, 1982). The measure consisted of eight items (e.g., “I find it easy to discuss problems with my parent”). Participants rated on a 5-point scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The internal consistency for this scale was .85 for Chinese Americans and .82 for Korean Americans.

### **Perceived Maternal Sacrifice**

Perceived maternal sacrifice was assessed at both waves using six items (Chao & Kaeochinda, 2010). The items were “My parent has made many sacrifices to give me a better life”, “My parent works hard to assure I have the best opportunities”, “My parent has really tried hard to give me opportunities that s/he did not have”, “My parent has faced great challenges to get where s/he is.”, “I am grateful to my parent for everything s/he has tried to do for me” and “I feel I owe a lot to my parent for everything s/he has tried to do for me.” Adolescents’ responses about the “parent” referred to the mother, and ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The scale possessed strong internal consistency with an alpha of .90 at both waves for Chinese Americans and .86 at Wave 1 and .91 at Wave 2 for Korean Americans.

### **Respect for the Mother**

Respect for the mother was assessed at both waves using eight items created for this study (e.g., “I respect my parent’s opinions about important things in my life”), adapted from the Parental Identification measure (Bowerman & Bahr, 1973). Responses were about the mother, and were along a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The internal consistency for the scale was .90 at Wave 1 and .89 at Wave 2 for Chinese Americans, and was .87 at Wave 1 and .88 at Wave 2 for Korean Americans.

### **Internalizing Problems**

Adolescents’ internalizing problems were assessed at both waves using the internalizing scale of the Youth Self-Report Form (YSR) of the Child Behavioral Checklist (CBCL; Achenbach, 1991). The scale contains 32 items such as “I feel lonely.”, “I feel overtired.”, and “I am shy”. Responses for the items were rated on a 3-point scale: 0 (*not true*), 1 (*somewhat or sometimes true*), and 2 (*very true or often true*). The score for internalizing problems was created by averaging all the items included in the scale. The scale possessed good internal consistency, with alphas of .89 for Chinese Americans at both waves and .90 for Korean Americans at both waves.

### **Externalizing Problems**

Externalizing problems were assessed at both waves using the externalizing scale of the Youth Self-Report Form (YSR) of the Child Behavioral Checklist (CBCL; Achenbach, 1991). The externalizing scale consists of 31 items such as “I am mean to others” and “I lie or cheat.” The items were rated on a 3-point scale: 0 (*not true*), 1

(*somewhat or sometimes true*) and 2 (*very true or often true*). The score for the externalizing scale was the overall average of all items comprising the scale. The internal consistency for this scale was .87 at Wave 1 and .88 at Wave 2 for Chinese Americans and .88 at both waves for Korean Americans.

### **Covariates**

Several covariates were controlled for in the analyses, including adolescents' gender, age, generational status, number of older siblings, and mothers' highest level of education. Mothers' highest level of education was obtained using adolescent report on a scale ranging from 1 (*no formal schooling*) to 8 (*finished graduate degree*). Child gender was coded as 0 (*female*) and 1 (*male*); child generational status was coded as 0 (*first generation*) and 1 (*second generation*).

## **Chapter 3: Results**

### **DATA ANALYSES**

Data were analyzed in three steps. First, descriptive and correlational analyses were conducted for study variables and control variables (see Table 1). Second, using path analysis, the hypothesized mediation model was tested, simultaneously for Chinese and Korean American adolescents, as depicted in Figure 1. To determine whether the hypothesized model was an equally good fit for both Chinese and Korean American adolescents, parameters related to study variables were constrained to be equal across groups, one at a time, provided that there was no significant drop in model fit. Covariates were then added to the final model, and were allowed to be estimated freely for each ethnic group. Third, the moderation hypothesis was tested for the significant indirect effects that emerged in step two. Parameters involving the moderator were constrained to be equal across groups, one at a time, provided that the model fit did not become significantly worse. Fourth, the significant interaction found in step three was then probed, following procedures outlined by Aiken and West (1991).



Table 1: Zero-order correlations, means, and standard deviations among study variables

Variable name	1	2	3	4	5	6	7	8
1. Brokering W1	--	-.01	.08	.06	.13*	.08	-.00	.03
2. Communication W1	.04	--	.35**	.54**	-.28**	-.37**	.26**	.40**
3. Sacrifice W1	.17**	.43**	--	.46**	-.10	-.19**	.53**	.35**
4. Respect W1	.12	.67**	.62**	--	-.14*	-.36**	.31**	.52**
5. Internalizing W1	.08	-.33**	-.12	-.09	--	.58**	-.104	-.10
6. Externalizing W1	-.07	-.39**	-.28**	-.33**	.58**	--	-.22**	-.29**
7. Sacrifice W2	.11	.21**	.67**	.45**	-.04	-.10	--	.52**
8. Respect W2	.04	.43**	.42**	.56**	.00	-.14	.53**	--
9. Internalizing W2	-.00	-.12	-.015	.04	.66**	.40**	-.09	-.03
10. Externalizing W2	-.08	-.29**	-.13	-.22**	.43**	.78**	-.14	-.25**
11. Child gender	-.04	-.04	-.05	-.14*	-.14*	.16*	-.14	-.22**
12. Child age	.06	-.03	-.13	-.08	.011	.050	-.09	.01
13. Child generation	-.26**	-.17*	-.00	-.06	-.04	.10	.03	-.10
14. No. Older Siblings	.06	-.04	.07	.06	.13	-.03	.09	.07
15. Mother Education	-.23**	-.01	-.07	-.01	-.09	.02	-.13	-.00
Mean	1.26	3.44	4.44	3.85	.48	.34	4.46	3.85
SD	.89	.83	.62	.76	.30	.24	.61	.74

Notes: Results below the diagonal are for Chinese Americans; results above the diagonal are for Korean Americans. \* $p < 0.05$ ; \*\*  $p < 0.01$ .

Table 1 (continued): Zero-order correlations, means, and standard deviations among study variables

Variable name	9	10	11	12	13	14	15	Mean	SD
1. Brokering W1	.15*	.09	.03	.07	-.13*	-.12	-.17*	1.45	.92
2. Communication W1	-.16*	-.17*	-.04	.08	.01	.01	.09	3.53	.75
3. Sacrifice W1	-.14	-.19*	.03	-.01	.07	.08	-.01	4.50	.56
4. Respect W1	-.1	-.27**	-.05	.10	.01	.12	.09	3.92	.68
5. Internalizing W1	.65**	.23**	-.24**	-.15*	.09	.01	.03	.48	.30
6. Externalizing W1	.27**	.59**	.05	-.03	.04	.01	-.05	.37	.25
7. Sacrifice W2	-.14	-.17*	.01	-.01	.00	.03	.17*	4.45	.66
8. Respect W2	-.19*	-.34**	-.07	.03	-.05	.05	.18*	3.85	.71
9. Internalizing W2	--	.43**	-.19*	-.02	.02	-.03	-.03	.45	.31
10. Externalizing W2	.57**	--	.16*	.07	.05	.06	-.09	.37	.25
11. Child gender	-.11	.19*	--	-.03	-.01	.03	-.10	.45	.50
12. Child age	-.00	.01	.05	--	-.08	.19**	-.17**	14.72	.69
13. Child generation	.10	.20**	-.00	-.06	--	.10	-.17**	.68	.47
14. No. Older Siblings	.09	.06	-.13	.03	-.08	--	-.06	.70	.60
15. Mother Education	-.04	-.01	.14	.14	.08	.04	--	6.46	1.16
Mean	.46	.35	.45	14.65	.59	.78	6.37	--	--
SD	.30	.27	.50	.68	.49	.77	1.68	--	--

Notes: Results below the diagonal are for Chinese Americans; results above the diagonal are for Korean Americans. \* $p < 0.05$ ; \*\*  $p < 0.01$ .

### TESTS OF THE INDIRECT EFFECTS

Path analysis was used to examine the hypothesized mediation model using Mplus 7 (Muthén & Muthén, 1998-2012). Both concurrent and longitudinal links, as well as direct and indirect effects among the model variables were tested simultaneously. Full information maximum likelihood (FIML) estimation method was used to handle missing

data (Muthén & Muthén, 1998-2012). The model was simultaneously tested for Chinese American and Korean American adolescents as a two-group model. The independent variable was the frequency of language brokering, the mediating variables were perceived maternal sacrifice and respect for the mother in sequence, and the outcome variables were internalizing or externalizing problems.

The model was first tested with all paths allowed to be freely estimated for Chinese and Korean American adolescents. Fit indices for this initial model suggested a good model fit:  $\chi^2(14) = 14.37, p = .42$ ; RMSEA = .01; CFI = 1.00, TLI = 1.00, SRMR = .03. Individual paths of the model were then constrained, one at a time, to determine if they were significantly different across groups. Chi-square test was used to determine whether a more constrained model fitted the data significantly worse than a less constrained one. All but two path coefficients could be constrained to be equal without significantly worsening model fit (Maternal Sacrifice W1  $\rightarrow$  Respect for Mother W1:  $\chi^2(1) = 4.47, p = .03$ ; Externalizing W1  $\rightarrow$  Externalizing W2:  $\chi^2(1) = 9.88, p = .002$ ). These paths were left to be estimated freely for each group. This partially invariant model indicated a good fit:  $\chi^2(41) = 30.53, p = .88$ ; RMSEA = .00; CFI = 1.00, TLI = 1.01, SRMR = .04. Covariates were then included in the model to obtain a final model that included adolescent's gender, age, generational status, number of older siblings, and mother's educational level. All paths involving the covariates were allowed to be estimated freely. The final mediation model indicated a good model fit to the data:  $\chi^2(41) = 29.00, p = .92$ ; RMSEA = .00; CFI = 1.00, TLI = 1.03, SRMR = .03. For the model

with Chinese Americans,  $R^2$  for internalizing problems at Waves 1 and 2 were .04 and .47, while  $R^2$  for externalizing problems at two waves were .14 and .67. For the model with Korean Americans,  $R^2$  for internalizing problems were .03 and .45, while  $R^2$  for externalizing problems were .14 and .67. Figure 1 shows the final model with standardized coefficients. Four indirect effects leading to externalizing problems (but not internalizing problems) were significant for both Chinese Americans and Korean Americans, which are presented in Table 2.

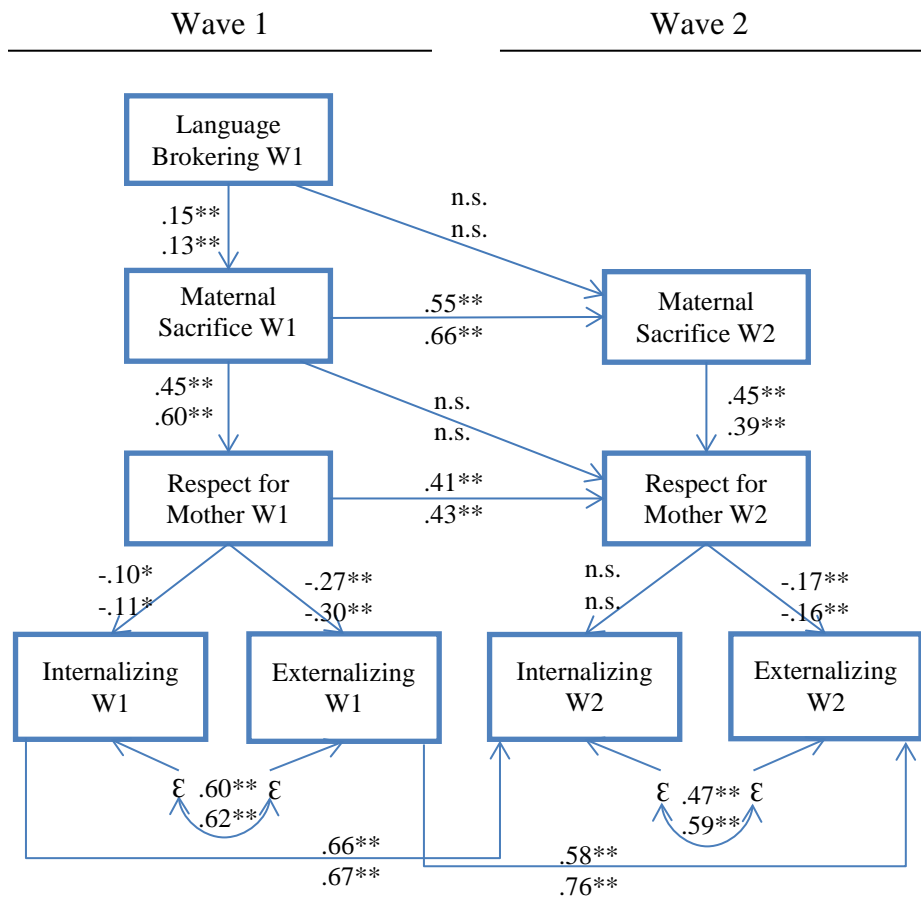


Figure 1: Structural model linking adolescents' language brokering for mother to perceived maternal sacrifice, to respect for mother, and to internalizing/externalizing problems. The top coefficients are for Korean Americans and the bottom coefficients are for Chinese Americans; \*  $p < .05$ ; \*\*  $p < .01$ .

Table 2: Indirect effects

	Chinese		Korean	
	$\beta$	$p$ -value	$\beta$	$p$ -value
<b><i>Indirect Effects</i></b>				
LB1→Sac1→Resp1→Ext1	-.023*	.012	-.018*	.015
LB1→Sac1→Sac2→Resp2→Ext2	-.005*	.034	-.006*	.034
LB1→Sac1→Resp1→Resp2→Ext2	-.005*	.034	-.005*	.037
LB1→Sac1→Resp1→Ext1→Ext2	-.018*	.012	-.010*	.016
<b><i>Conditional Indirect Effects</i></b>				
LB1→Sac1→Sac2→Resp2→Ext2				
+1SD	-.003	.353	-.003	.354
Mean	-.006*	.022	-.007*	.023
-1SD	-.010*	.014	-.011*	.014
LB1→Sac1→Resp1→Resp2→Ext2				
+1SD	-.001	.359	-.001	.363
Mean	-.003*	.033	-.002*	.041
-1SD	-.005*	.024	-.004*	.031

Notes: LB: language brokering, Sac: perceived maternal sacrifice, Resp: respect for the mother, Ext: externalizing problems. \*  $p < .05$ .

### TESTS OF CAUSAL ORDERING

To better support the temporal ordering of the variables in the mediational chain, five alternative cross-sectional mediational models were tested using Wave 1 variables. In all five models, externalizing problems were only tested as the final outcome variable, while language brokering, perceived maternal sacrifice, and respect for the mother were examined as predictors of externalizing problems, with different structural arrangements

specified. For simplicity, only the most parsimonious models were tested, with all the paths fixed to be equal across Chinese and Koreans. Thus, only one set of results are presented in Table 3. As seen in Table 3, which reports the model fit and indirect effect for all possible causal orderings of the predictor variables of externalizing problems, all the other temporal orderings of the variables, except for one (LB1 → Resp1 → Sac1 → Ext1), were less well fitting than the hypothesized model. Moreover, the one model that had a better fit than the hypothesized did not have a significant indirect effect in that causal ordering. Thus, only the hypothesized model was supported by the data. Models for internalizing problems were also conducted, but no significant indirect effect in any order was found.

In addition, a full cross-lagged panel model was conducted using both waves of data to see whether Wave 1 variables significantly predicted the changes in Wave 2 variables. All four Wave 1 variables were specified to correlate with one another, and so were the residuals of all three Wave 2 variables. All Wave 2 variables were regressed on all Wave 1 variables, including auto-regressive paths and cross-lagged paths. Again, all paths were fixed to be equal across Chinese and Koreans. Model fit is reported in Table 3. The results suggested that Wave 1 perceived maternal sacrifice significantly predicted Wave 2 respect for the mother ( $B = .17, p = .01$ ), even after controlling for its prior level at Wave 1; thus, perceived maternal sacrifice significantly predicts the change in respect for the mother between Wave 1 and Wave 2. The effect of Wave 1 respect for the mother on the change in externalizing problems between Wave 1 and Wave 2 was marginally

significant ( $B = -.03$ ,  $p = .05$ ). This is assessed by the direct effect of Wave 1 respect for the mother on Wave 2 externalizing problems, controlling for its prior level at Wave 1. However, the effect of Wave 1 language brokering on the change of perceived maternal sacrifice was not significant. Then, another full cross-lagged panel model was tested, which included Wave 2 language brokering, despite a large proportion of missing data for this variable. Similarly, perceived sacrifice significantly predicted the change in respect ( $B = .17$ ,  $p = .01$ ), and respect for the mother had a marginally significant effect on the change in externalizing problems ( $B = -.03$ ,  $p = .05$ ). Neither did perceived maternal sacrifice nor respect significantly predicted the change in language brokering.

Table 3: Model Comparison

Cross-sectional Models	Indirect Effect ( $B$ )	$p$ -value	RMSEA	CFI	TLI	SRMR
LB1 → Sac1 → Resp1 → Ext1	-0.005*	0.017	0.042	0.987	0.977	0.081
LB1 → Resp1 → Sac1 → Ext1	-0.001	0.252	0.035	0.991	0.984	0.098
Sac1 → LB1 → Resp1 → Ext1	0.000	0.682	0.050	0.981	0.968	0.139
Sac1 → Resp1 → LB1 → Ext1	0.000	0.700	0.049	0.981	0.968	0.139
Resp1 → LB1 → Sac1 → Ext1	0.000	0.303	0.049	0.981	0.968	0.152
Resp1 → Sac1 → LB1 → Ext1	0.001	0.344	0.049	0.982	0.969	0.148
Longitudinal Models			RMSEA	CFI	TLI	SRMR
Full Cross-Lagged Panel Model, without W2 LB			0.036	0.986	0.984	0.107
Full Cross-Lagged Panel Model, with W2 LB			0.038	0.984	0.978	0.100

Notes: LB: language brokering, Sac: perceived maternal sacrifice, Resp: respect for the mother, Ext: externalizing problems. \* $p < .05$ .



Taken together, the hypothesized model is generally supported in that no alternative causal ordering was supported by the data. However, language brokering did not show a longitudinal effect on the change of perceived maternal sacrifice, but instead had an indirect effect on Wave 2 perceived maternal sacrifice through Wave 1 perceived sacrifice.

#### **TESTS OF THE CONDITIONAL INDIRECT EFFECTS**

To test the hypothesized conditional indirect effects, mother-child open communication at Wave 1 and the interaction term between language brokering at Wave 1 and open communication at Wave 1 were added to the model as additional independent variables to language brokering (see Figure 2). Language brokering and open communication were both centered on the mean value for each ethnic group before obtaining the interaction term. As significant indirect effects were found only for externalizing problems, the new moderation model included only externalizing problems as outcome variables. The new model indicated a good fit:  $\chi^2(22) = 23.72, p = .36$ ; RMSEA = .02; CFI = 1.00, TLI = .99, SRMR = .03. Then, coefficients for the pathways involving open communication and the interaction term were constrained to be equal across groups, one at a time. All pathways could be constrained without significantly worsening model fit. The resulting constrained model was a good fit:  $\chi^2(34) = 31.00, p = .62$ ; RMSEA = .00; CFI = 1.00, TLI = 1.01, SRMR = .04. For the model with Chinese Americans,  $R^2$  for externalizing problems at Waves 1 and 2 were .20 and .69, while for the model with Korean Americans,  $R^2$  for externalizing problems at two waves were .16

and .41.

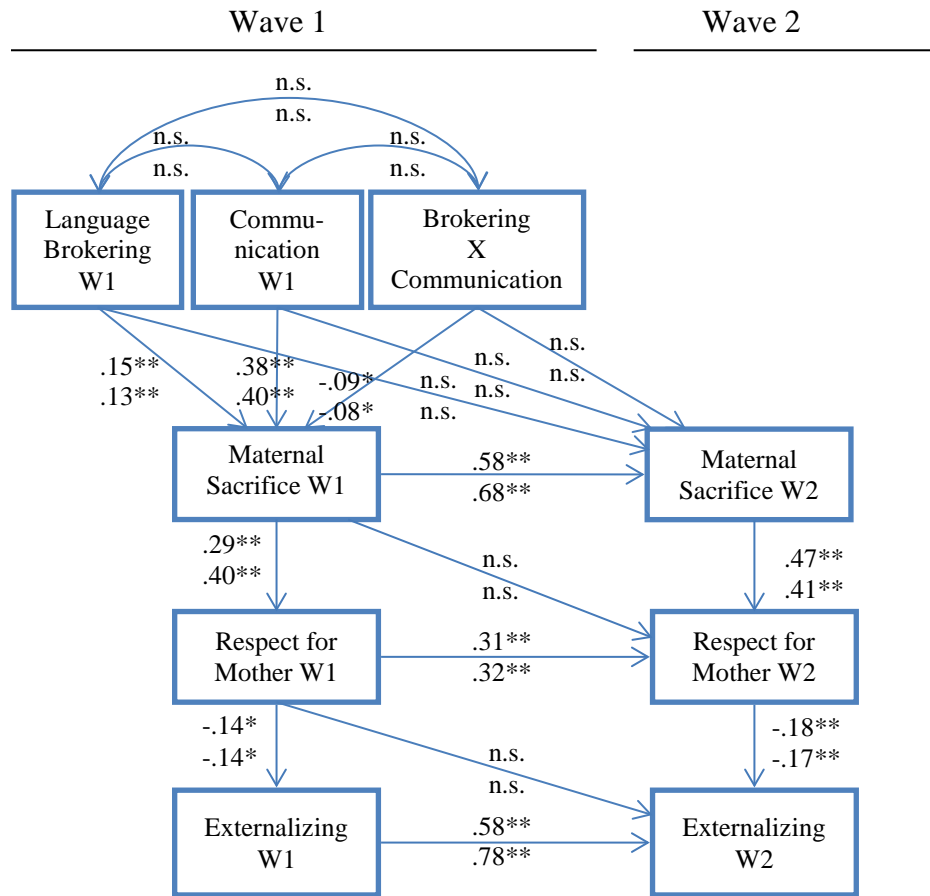


Figure 2: Moderation of mother-child open communication. The paths for the two significant indirect effects are denoted by the same letters b' and c'. The top coefficients are for Korean Americans and the bottom coefficients are for Chinese Americans. \* $p < 0.05$ ; \*\*  $p < 0.01$ .

The moderation hypothesis was supported. The interaction term of language brokering and mother-child open communication had a significant direct effect on perceived maternal sacrifice assessed at Wave 1, both for Chinese Americans ( $\beta = -.08$ ,  $p = .04$ ), and for Korean Americans ( $\beta = -.09$ ,  $p = .04$ ). The significant interaction was then

probed and examples of the moderating effect of open communication are presented in Figure 3 (moderation on the direct effect of language brokering W1 on perceived maternal sacrifice W1) and Figure 4 (moderation on the indirect effect of language brokering W1 on externalizing problems W2).

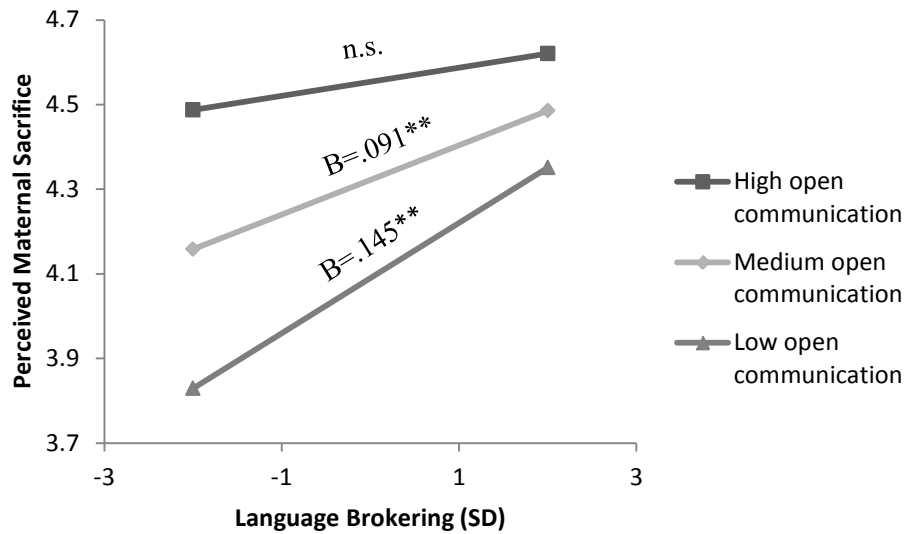


Figure 3: Plot of Chinese American adolescents' mother-child open communication W1 as a moderator conditioning the direct effect of language brokering W1 on perceived maternal sacrifice W1. The lower the level of open communication, the stronger the relation between language brokering W1 and perceived maternal sacrifice W1.

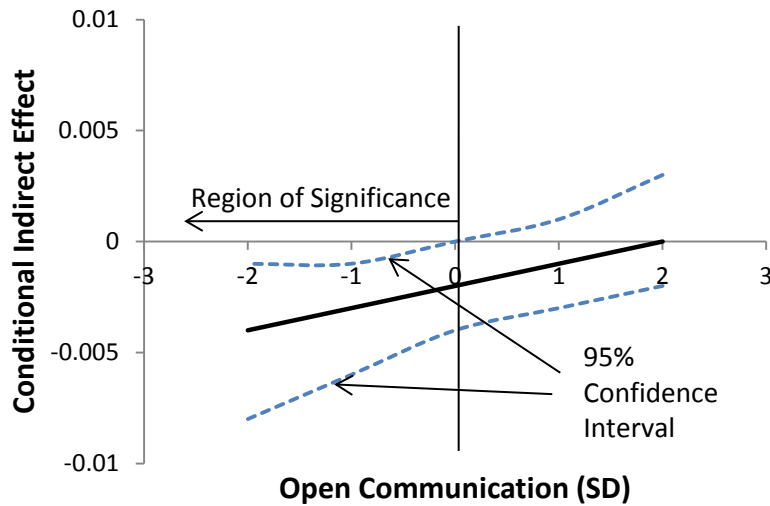


Figure 4: Plot of Chinese American adolescents' mother-child open communication W1 as a moderator conditioning the indirect effect of language brokering for mother W1 on externalizing problems W2, sequentially via perceived maternal sacrifice W1, perceived maternal sacrifice W2, and respect for mother W2. The y axis is the magnitude of the indirect effect of language brokering W1 on externalizing problems W2. The x axis is mother-child open communication W1. Dashed lines represent 95% confidence intervals. The horizontal line denotes an indirect effect of zero. The vertical line indicates the boundary of the region of significance, such that the indirect effect is only significant on the left side of the vertical line. Overall, the plot demonstrates that the lower the level of open communication, the stronger the indirect effect is.

In line with predictions, more language brokering was associated with more perceived maternal sacrifice when open communication was low and medium, but not when it was high. Results for Chinese Americans and Korean Americans were similar with the same slopes and slightly different intercepts due to freely estimated parameters for covariates. As shown in Figure 3a (unstandardized results for Chinese Americans), when open communication was low (1SD below the mean), the direct effect of language

brokering on perceived maternal sacrifice was significant, both for Chinese Americans and Korean Americans ( $B = .145, p = .004$ ). The direct effect was also significant when open communication was medium (at the mean level), both for Chinese Americans and Korean Americans ( $B = .091, p = .001$ ). However, there was no significant effect of language brokering on perceived maternal sacrifice when the level of open communication was high (1SD above the mean), either for Chinese Americans or Korean Americans ( $B = .037, p = .334$ ).

In the new model, two of the four significant indirect effects in the mediation model remained significant and the other two became marginally significant. The two remaining significant indirect effects were further moderated by mother-child open communication, as shown in Table 2. For both conditional indirect effects, the lower the quality of communication was, the larger the size of the indirect effects. As an example, Figure 3b shows the region of significance of one conditional indirect effect (standardized results for Path  $LB1 \rightarrow Sac1 \rightarrow Sac2 \rightarrow Resp2 \rightarrow Ext2$  for Chinese Americans). When mother-child open communication was at or below the mean level, the indirect effect was significant. However, when mother-child open communication was above the mean level, the 95% confidence interval of the indirect effect contained zero, suggesting a non-significant indirect effect.

## **Chapter 4 Discussion**

The current study tested a conditional indirect effect of language brokering for the mother on adolescents' internalizing/externalizing problems. First, analyses for the mediation model supported the hypothesized indirect effect of language brokering for mother on externalizing problems via perceived maternal sacrifice and respect for the mother, but did not support the indirect effect leading to internalizing problems. Second, the indirect effect of language brokering for the mother on externalizing problems was moderated by mother-child open communication. Specifically, the less adolescents experienced mother-child open communication, the stronger the direct effect of language brokering on perceived maternal sacrifice, and the stronger the indirect effect of language brokering on externalizing problems. Third, the model was generally equivalent across Chinese and Korean American adolescents, with only a slight difference in the magnitude of the effects.

### **INDIRECT EFFECTS**

While many existing studies on language brokering have used qualitative or cross-sectional designs, the present study uses a two-wave longitudinal design to test the mediational hypothesis. With the mediators and the outcome variables measured at both waves, the analyses statistically controlled for prior levels of the dependent variables, allowing for a better support for the long-term, indirect effects of language brokering on adolescent outcomes.

The significant mediation found in this study demonstrates the importance of the

cultural-familial context of language brokering. Several scholars have suggested that language brokering should not be seen as a solitary activity, and that it should be understood in the socio-cultural and relational context (e.g., Dorner, Orellana, & Jiménez, 2008; Hua & Costigan, 2011; N. H. Wu & Kim, 2009). To our knowledge, this is the first study to test a mediation model linking culturally relevant parent-child relationships to adolescent brokers' psychological adjustment. Findings from the current study suggest that, in Chinese and Korean American families, language brokering for mother is associated with a perception of the mother's sacrifices and respect for the mother, both of which are desired in traditional Asian culture (Chao & Tseng, 2002; Kim & Park, 2006). When language brokering is examined in such a cultural-familial context, a link to lower levels of externalizing problems eventually emerges.

In addition, the finding that perceived maternal sacrifice mediates the relation between language brokering for the mother and respect for the mother is generally consistent with Chao's (2006) speculation that adolescents may gain a deeper understanding of their parents through brokering. Findings from the current study suggest that, within Chinese and Korean immigrant families, language brokering for their mother indirectly increases adolescents' respect for the mother through increasing adolescents' understanding of, and appreciation for, the mother's sacrifices. Indeed, scholars have argued that, even though child language brokers assume some adult-like responsibilities, inordinate power may not be necessarily given to the children who function as language brokers in their families: power may generally still remain in the parents' hands (e.g.,

Dorner, et al., 2008; Orellana, et al., 2003). This study is the first to explicitly test a potential mechanism of the positive relation between language brokering and respect for parent.

Contrary to our hypothesis, perceived maternal sacrifice and respect for the mother do not mediate the relation between language brokering for the mother and adolescents' internalizing problems, for either Chinese or Korean American adolescent brokers. The mechanism behind brokers' increased internalizing problems is not yet known, but it is possible that language brokering triggers some additional negative factors not assessed in this study and these unknown factors may be linked to internalizing problems. For example, Wu and Kim (2009) have found an indirect link from a weak Chinese orientation, to a weak sense of family obligation, to a sense of perceived alienation, and to a sense of burden as language brokers. Such a sense of burden of adolescent language brokers may be responsible for their internalizing problems. Future studies may investigate the underlying mechanism of the positive relation between language brokering and internalizing problems among Asian American adolescents.

#### **CONDITIONAL INDIRECT EFFECTS**

This study also identifies the moderating role of mother-child open communication. To date, little research has examined the moderating role of American/Western values in the relations between language brokering, parent-child relationships and adolescent adjustment. This study is the first to test a conditional



indirect effect of language brokering, which enables joint examination of mediation and moderation in the same model. The results suggest that, the above-mentioned indirect effect is significant, but only when the level of mother-child open communication is at or below the mean. For Chinese and Korean American adolescents who experience lower levels of open communication, language brokering for the mother becomes beneficial in that it creates opportunities for adolescents to better understand their immigrant mother, which in turn leads to respect for the mother and to lower levels of externalizing problems.

When mother-child open communication is high, the relations between language brokering and perceived maternal sacrifice, respect for the mother, and externalizing problems are no longer significant. Previous qualitative studies show that language brokering takes place within the framework of everyday activities and is experienced by children as “just normal” (Dorner, et al., 2008; Orellana, et al., 2003). Our results suggest that this may be true for those adolescents experiencing high levels of open communication with their mother. Perhaps the beneficial effect of communication is so pronounced in that adolescents in these families may exhibit positive outcomes regardless of how much language brokering they do. For these adolescents, language brokering is no longer specifically associated with a greater perception of maternal sacrifice, respect for the mother, or externalizing problems in the adolescent. That is, language brokering becomes a neutral or “just normal” experience in a context of high open communication.

## **IMPLICATIONS FOR PREVENTIVE INTERVENTIONS FOR ASIAN AMERICAN ADOLESCENT BROKERS**

By identifying a conditional mechanism of the effect of language brokering, the present study can inform interventions that aim to reduce externalizing problems among Asian American adolescent language brokers, especially among Chinese and Korean American adolescents. Interventions can target adolescents' perception of parental sacrifice or respect for parents. By improving adolescents' understanding of parents' sacrifices and by encouraging their feelings of respect for parents, intervention programs may be able to reduce adolescent externalizing problems. Moreover, such interventions may be particularly effective for adolescents who experience less open communication with their parents. Thus, interventions can first screen the participating Chinese and Korean immigrant families based on the level of parent-child open communication in the family. Selecting families with low levels of open communication would conserve resources by ensuring that the families who would benefit most from the intervention are the ones receiving it. At the same time, for these families with low levels of parent-child open communication, encouraging more open communication may be an additional way to intervene.

With a multiple group analysis, this study tests the generalizability of the conditional mechanism across Chinese and Korean American adolescents. Despite differences in the magnitude of two relations (perceived sacrifice  $W1 \rightarrow$  respect for mother  $W1$ ; externalizing  $W1 \rightarrow$  externalizing  $W2$ ), both relations were positive and

significant across Chinese and Korean American adolescents. Thus, the study findings may still be generalizable across these two ethnic groups, and interventions designed accordingly can be similarly effective for both Chinese and Korean American adolescents. More studies are needed to examine if similar mechanisms also apply to other Asian subgroups affected by traditional Chinese culture, such as Japanese and Vietnamese. However, in the process of establishing equivalence, the distinctiveness of each ethnic group should not be underestimated, and future studies should also identify group-specific factors.

#### **LIMITATIONS AND FUTURE DIRECTIONS**

This study has several limitations. First, although the present study supports a conditional indirect effect of language brokering on externalizing problems, the same mechanism did not apply to the relation between language brokering and internalizing problems. Second, the sample is selected from an area with a dense Chinese and Korean population. It is not known whether the findings are generalizable to Chinese and Korean Americans in other areas of the U.S., where Asian populations are smaller. Third, this study relied on adolescents' self-reports to measure the study variables, and adolescents' perceptions of the constructs may not be the same as parents' perceptions. For example, adolescents may feel more respect toward parents because of language brokering, but parents themselves may feel embarrassed or disrespected. Parents' perceptions of language brokering may then influence their parenting practices, which may in turn have an impact on adolescents' psychological adjustment. This line of inquiry will be pursued

in the future and is also recommended as a future direction for research focusing on language brokering.

In conclusion, this study provides some initial evidence that Chinese and Korean American adolescents' culturally relevant parent-child relationships, including factors such as perception of maternal sacrifice, respect for the mother, and mother-child open communication, may form a conditional mechanism through which language brokering for the mother indirectly influences adolescents' externalizing problems. This study has important implications for preventive interventions designed to reduce the risk of externalizing problems among Chinese and Korean American adolescent language brokers.

## **Appendix A: Language Brokering Scale (for the Mother)**

How often have you translated the following things from English to the other non-English language for your mother?

1. Homework or assignments from school
2. Materials from school (notices, newsletters, permission slips, progress reports)
3. Meetings or conversations between your parent and teacher or other school staff.
4. Household bills or financial materials
5. Household matters not related to money (chores, siblings or relatives)
6. Medical or health issues (doctor visits, medication)
7. Immigration and naturalization papers
8. Media (T.V. programs, news, newspapers, etc.)
9. Items or issues for your parent's work / business

## **Appendix B: Mother-Child Open Communication Scale**

How much do you agree with the statements below?

1. My mother understands me well.
2. I do not understand what my mother wants from me (Reverse Coded).
3. I feel that my mother cannot express herself to me (Reverse Coded).
4. I feel that when I try to talk with my mother, s/he misunderstands me (Reverse Coded).
5. I find it easy to discuss problems with my mother.
6. My mother tries to understand my point of view.
7. I spend enough time communicating with my mother.
8. I am pleased with the quality of communication I have with my mother.

## **Appendix C: Perceived Maternal Sacrifice Scale**

Please answer the following for the parent you circled earlier as your primary caregiver (mother).

1. My parent has made many sacrifices to give me a better life.
2. My parent works hard to ensure I have the best opportunities.
3. My parent has really tried hard to give me opportunities that s/he did not have.
4. My parent has faced great challenges to get where s/he is.
5. I am grateful to my parent for everything s/he has tried to do for me.
6. I feel I owe a lot to my parent for everything s/he has tried to do for me.

## **Appendix D: Respect Scale (for the Mother)**

How much do you agree with the statements below?

1. I listen to my mother because she is my parent.
2. It is important that my mother approves of what I do.
3. When it comes to important decisions, my mother has the most influence.
4. Even if I completely disagree with her, I have to respect my mother's beliefs.
5. I respect my mother's opinions about important things in my life.
6. I have a high regard for my mother.
7. I try to honor my mother by living up to her expectations of me.
8. I try to be obedient to my mother.



## Appendix E: Internalizing Problems

Below is a list of items that describe kids. For each item that describes you **now or within the past 6 months**, please bubble the **2** if the item is **very true or often true** of you. Bubble the **1** if the item is **somewhat or sometimes true** of you. If item is **not true** of you, bubble the **0**.

1. There is very little that I enjoy.
2. I cry a lot.
3. I am afraid of certain animals, situations, or places, other than school.
4. I am afraid of going to school.
5. I am afraid I might think or do something bad.
6. I feel I have to be perfect.
7. I feel that no one loves me.
8. I feel worthless or inferior.
9. I would rather be alone than with others.
10. I am nervous or tense.
11. I have nightmares.
12. I am too fearful or anxious.
13. I feel dizzy or lightheaded.
14. I feel too guilty.
15. I feel overtired without good reason.
16. Physical problems without known medical cause: a. Aches and pains (not headache)
17. Physical problems without known medical cause: b. Headaches;
18. Physical problems without known medical cause: c. Nausea, feel sick;
19. Physical problems without known medical cause: d. Problem with eyes;

- 20. Physical problems without known medical cause: e. Rashes or other skin problem;
- 21. Physical problems without known medical cause: f. Stomachaches or cramps;
- 22. Physical problems without known medical cause: g. vomiting or throwing up
- 23. I refuse to talk.
- 24. I am secretive or keep things to myself.
- 25. I am self-conscious or easily embarrassed.
- 26. I am too shy or timid.
- 27. I am suspicious.
- 28. I think about killing myself.
- 29. I don't have much energy.
- 30. I am unhappy sad or depressed.
- 31. I keep from getting involved with others.
- 32. I worry a lot.

## Appendix F: Externalizing Problems

Below is a list of items that describe kids. For each item that describes you **now or within the past 6 months**, please bubble the **2** if the item is **very true or often true** of you. Bubble the **1** if the item is **somewhat or sometimes** true of you. If item is **not true** of you, bubble the **0**.

1. I drink alcohol without my parents' approval.
2. I argue a lot.
3. I am mean to others.
4. I try to get a lot of attention.
5. I destroy my own things.
6. I destroy things belonging to others.
7. I disobey my parents.
8. I disobey at school.
9. I don't feel guilty after doing something I shouldn't
10. I break rules at home, school, or elsewhere
11. I get in many fights.
12. I hang around with kids who get in trouble.
13. I lie or cheat.
14. I physically attack people.
15. I would rather be with older kids than with kids my own age.
16. I run away from home.
17. I scream a lot.
18. I set fires.
19. I steal at home.

20. I steal from places other than home.
21. I am stubborn.
22. My moods or feelings change suddenly.
23. I swear or use dirty language.
24. I tease others a lot.
25. I have a hot temper.
26. I think about sex too much.
27. I threaten to hurt people.
28. I smoke, chew, or sniff tobacco.
29. I cut classes or skip school.
30. I am louder than other kids.
31. I use drugs for nonmedical purposes.

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